IN THE CLAIMS

1. (Currently Amended) A modulation semiconductor integrated circuit device ~~which controls~~ comprising:

a voltage-controlled oscillation circuit ~~with~~ coupled to receive a first control voltage to produce a ~~base~~ carrier frequency signal, ~~controls the voltage controlled oscillation circuit with~~ and coupled to receive a second control voltage to produce a modulation frequency signal based on ~~which is derived from~~ data to be transmitted ~~thereby to implement the frequency modulation, and implements the data transmission by changing~~, wherein the ~~base~~ carrier frequency ~~, wherein~~ is changed in a data transmission by changing the first control voltage so that the carrier frequency is hopping, and wherein the voltage-controlled oscillation circuit includes a capacitance element whose value is changed based on the first and the second control voltages, and

a circuit ~~of~~ for producing the second control voltage, whose ~~has its~~ reference current value is controlled in response to the change of the ~~base~~ carrier frequency such that the variation of the second control voltage of the voltage-controlled oscillation circuit in response to the change of ~~base~~ carrier frequency exhibits a characteristic that is

opposite to the characteristic of modulation frequency deviation of the voltage-controlled oscillation circuit.

2. (Currently Amended) A modulation semiconductor integrated circuit device according to claim 1 ~~including~~, further comprising:

a phase comparison circuit which compares in phase the oscillation output of said voltage-controlled oscillation circuit with a reference clock signal, and a control voltage generation circuit which generates, in accordance with the phase difference detected by said phase comparison circuit, such a voltage that the phase difference dissolves and applies as the first control voltage to said voltage-controlled oscillation circuit, said voltage-controlled oscillation circuit, said phase comparison circuit, and said control voltage generation circuit forming in unison a phase-locked loop.

3. (Original) A modulation semiconductor integrated circuit device according to claim 2, wherein said second control voltage is supplied to said voltage-controlled oscillation circuit through a path separate from the path of said phase-locked loop.

4. (Previously Amended) A modulation semiconductor integrated circuit device according to claim 1, wherein said circuit of producing the second control voltage includes a digital filter which samples a digital transmission data signal and implements a computation for the sampled signal, and a D/A conversion circuit which implements the D/A conversion for the output of said digital filter, said controlled reference current value being the reference current value of said D/A conversion circuit.

5. (Currently Amended) A modulation semiconductor integrated circuit device according to claim ~~1~~ 2, wherein said phase-locked loop includes a variable counter circuit which counts the oscillation output of said oscillation circuit, and a register which sets a value to be counted by said variable counter circuit, the ~~base~~ carrier frequency being changed in response to the alteration of the value set in said register, the reference current value being controlled in accordance with the value set in said register.

6. (Currently Amended) A modulation semiconductor integrated circuit device according to claim 1 ~~including~~, further comprising:

a trimming circuit which adjusts the reference current value.

7. (Previously Amended) A modulation semiconductor integrated circuit device according to claim 1, wherein said voltage-controlled oscillation circuit includes a first variable capacitance means and a second variable capacitance means, and has its oscillation frequency varied in response to the variation in capacitance value of said first variable capacitance means by the first control voltage and in response to the variation in capacitance value of said second variable capacitance means by the second control voltage.

8. (Original) A modulation semiconductor integrated circuit device according to claim 5, wherein the count result of said variable counter circuit is accessible by read-out from the outside through an external terminal.

9. (Original) A modulation semiconductor integrated circuit device according to claim 8, wherein the count result

of said variable counter circuit is accessible by read-out from the outside through an external terminal via said register and the register setting path.

10. (Currently Amended) A method of testing a semiconductor integrated circuit device which includes a voltage-controlled oscillation circuit having its oscillation frequency controlled by a first control voltage and a second control voltage individually, a phase comparison circuit which compares in phase the oscillation output of said voltage-controlled oscillation circuit with a reference clock signal, and a control voltage generation circuit which generates, in accordance with the phase difference detected by said phase comparison circuit, such a voltage that the phase difference dissolves and applies as the first control voltage to said voltage-controlled oscillation circuit, with said voltage-controlled oscillation circuit, said voltage-controlled oscillation circuit, said phase comparison circuit and said control voltage generation circuit being connected to form a phase-locked loop, said second control voltage being supplied to said voltage-controlled oscillation circuit through a path separate from the path of said phase-locked loop,

~~wherein~~ said method ~~activates said oscillation circuit for the test operation by~~ includes the steps of:

applying the second control voltage in the test operation ~~which is~~ the second control voltage being made higher than the voltage for ~~the~~ normal operation, ~~counts~~

counting the output of said voltage-controlled oscillation circuit with a counter, and ~~tests~~

determining any~~the~~ variation of the output frequency of said voltage-controlled oscillation circuit caused by the second control voltage, by making reference to the count value of said counter in a predetermined time duration ~~of said counter~~.

11. (New) A modulation semiconductor integrated circuit device comprising:

a first circuit, including a voltage-controlled oscillation circuit having first and second inputs, arranged to receive a reference signal and to provide a first voltage control signal to the first input of the voltage-controlled oscillation circuit; and

a second circuit arranged to receive data for transmission and to provide a second voltage control signal to

the second input of said voltage-controlled oscillation circuit,

wherein said first circuit is a phase-locked loop circuit further including a demultiplier arranged to receive an output from said voltage-controlled oscillation circuit, a counter arranged to receive an output of the demultiplier, a phase comparator arranged to receive the reference signal and an output from the counter, a charge pump arranged to receive an output of the phase comparator, and a loop filter arranged to receive an output of the charge pump and to output the first voltage control signal to the first input of the voltage-controlled oscillation circuit.

12. (New) A modulation semiconductor integrated circuit device according to claim 11,

wherein the second circuit includes a Gaussian filter circuit arranged to receive the data for transmission, a digital-to-analog converter circuit arranged to receive an output of the Gaussian filter circuit, a low-pass filter circuit arranged to receive an output of the digital-to-analog converter circuit and to output the second voltage control signal for input to the second input of the voltage-controlled oscillation circuit, and a current adjust circuit arranged to

adjust a reference current value of the digital-to-analog converter circuit in response to a change of the carrier frequency, thereby changing the second control voltage input to the voltage-controlled oscillation circuit in response to the change of carrier frequency, whereby the second control voltage input to the voltage-controlled oscillation circuit changes so as to oppose a modulation frequency deviation of the voltage-controlled oscillation circuit, and

wherein the second circuit varies the second voltage control signal to modulate a carrier frequency signal output by the voltage-controlled oscillation in accordance with a change in the carrier frequency.